Remarks

The Office Action mailed 24 September 2002 has been received and reviewed. Claims 22, 33, 39, 50, and 51 having been amended, the pending claims are claims 1, 5, 10-14, 16, 18, 19, 21-35, 39 and 41-52.

Claims 22, 33, 39, 50, and 51 have been amended to recite wherein the pore size is a bubble point pore size measured according to ASTM F-316 and that the pore size is no greater than about 2.0μm. Support for these amendments is found in the specification at page 11, lines 11-14.

No new matter has been added as a result of these amendments.

Reconsideration and withdrawal of the rejections in view of the above amendments and the following comments are respectfully requested.

The 35 U.S.C. §112, First Paragraph, Rejection

The Examiner rejected claims 22, 25-35, 39, and 44-52 under 35 U.S.C. §112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Specifically, the Examiner argues that the application as originally filed does not provide support for the pore size limitation of claims 22, 25-35, 39 and 44-52.

The Examiner indicated at page 3, lines 9-12 of the present Office Action that a claimed pore size range amended to include a pore size no greater than 2.0μm would be considered supported by the original disclosure provided the claims specified that the pore size was a bubble point pore size measured according to ASTM F-316.

Although Applicants do not agree with the Examiner, independent claims 22, 33, 39, 50, and 51 have been amended to recite that the size of the pores is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-

316, in an effort to expedite prosecution. Applicants, therefore, assert that the claims as amended are fully supported by the original disclosure.

Reconsideration and withdrawal of the rejection is respectfully requested.

The 35 U.S.C. §103 Rejection

The Examiner rejected claims 22, 25-28, 32-35, and 48-52 under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. (U.S. Patent No. 5,500,668) in view of Carriera et al (U.S. Patent No. 5,220,346).

The Examiner rejected claims 29-31, 39, 44, and 45 under 35 U.S.C. §103(a) as being unpatentable over Malhotra et al. (U.S. Patent No. 5,500,668) in view of Carriera et al. (U.S. Patent No. 5,220,346) as applied to claims 22, 25-28, 32-35, and 48-52 above, and further in view of Kojima et al. (U.S. Patent No. 5,677,067).

Applicants respectfully traverse these rejections.

Applicants respectfully submit that none of the above documents teach or suggest an inkjet receptor medium including a porous or microporous membrane wherein the size of the pores of the porous or microporous membrane is at least 0.2μm, wherein the pore size is a bubble point pore size measured according to ASTM F-316.

Furthermore, the Declaration of Clinton P. Waller, enclosed herewith, presents evidence that an inkjet receptor medium of the present invention having a pore size smaller than the claimed pore size of at least 0.2 μm (Declaration of Clinton P. Waller, Jr., Exhibit A, including a substrate having a pore size of 0.17μm) will provide a printed image of visibly inferior quality as compared with an image produced with the same inks under the same conditions and with the same type of substrate, the only difference being that the pore size is within the claimed pore size (Declaration of Clinton P. Waller, Jr., Exhibit B, including a substrate having a pore size of 0.4μm). Applicants assert that the Declaration provided herewith not only presents evidence that the inkjet receptor media of the present invention including

porous membranes wherein the size of the pores is at least 0.2μm provides a particular advantage, but also that this advantage is not obvious to one of ordinary skill in the art.

Reconsideration and withdrawal of the rejections are respectfully requested.

Allowed Claims

Applicants' thank the Examiner for notification to the effect that claims 1, 5, 10-14, 16, 18, 19, 21, 23, 24 and 41-43 have been allowed.

Summary

It is respectfully submitted that the pending claims 1, 5, 10-14, 16, 18, 19, 21-35, 39 and 41-52 are in condition for allowance and notification to that effect is respectfully requested.

The Examiner is invited to contact Applicants' Representatives, at the below-listed telephone number, if it is believed that prosecution of this application may be assisted thereby.

Respectfully submitted for
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CERTIFICATE UNDER 37 CFR §1.8:
The undersigned hereby certifies that this paper is being transmitted by facsimile in accordance with 37 CFR §1.6(d) to the Patent and Trademark Office, addressed to Assistant Commissioner for Patents, Washington, D.C. 20231, on this 24th day of December, 2002, at 2:50 pm (Central Time).

By: Kathleen Franklin
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APPENDIX A - SPECIFICATION/CLAIM AMENDMENTS INCLUDING NOTATIONS TO INDICATE CHANGES MADE
Serial No.: 08/892,902
Docket No.: 53473US002

Amendments to the following are indicated by underlining what has been added and bracketing what has been deleted.

In the Claims

For convenience, all pending claims are shown below.

1. (ALLOWED) An inkjet receptor medium comprising:

a porous substrate having a fluid management system and a pigment management system in contact with surfaces of pores of the substrate, wherein the pigment management system comprises functionalized particulates within the pores of the porous substrate and the fluid management system comprises a surfactant.

5. (ALLOWED) The medium of Claim 1, wherein the functionalized particulates comprise fluorinated silica agglomerates that interact with dispersant to agglomerate pigment particles as an ink containing the pigment particles passes through pores.

10. (ALLOWED) The medium according to Claim 21, wherein the microporous membrane comprises a polypropylene film co-extruded with a mineral oil followed by bi-axial stretching under thermal conditions.

11. (ALLOWED) The medium according to claim 10, wherein the microporous membrane is an opaque film.

12. (ALLOWED) The medium according to Claim 1, wherein the surfactant is selected from the group consisting of fluorocarbon, silicon, hydrocarbon-based surfactants or a mixture thereof.

13. (ALLOWED) The medium according to Claim 12, wherein the surfactant comprises a silicon-based non-ionic surfactant.

14. (ALLOWED) The medium according to Claim 12, wherein the surfactant comprises a hydrocarbon surfactant of a fatty acid.

16. (ALLOWED) A method of making an inkjet receptor medium comprising:

(a) preparing a pigment management system;

(b) imbibing the pigment management system into pores of a porous substrate, wherein the pigment management system once imbibed into the pores comprises functionalized particulates within the pores of the porous substrate; and

(c) imbibing a fluid management system into the pores of the porous substrate wherein the fluid management system comprises a surfactant.

18. (ALLOWED) A method of using an inkjet receptor medium comprising:

(a) placing an inkjet receptor medium of claim 1 in an inkjet printer; and

(b) printing an image on the medium using inkjet ink, wherein the inkjet ink comprises pigment particles.

19. (ALLOWED) The method according to Claim 18, wherein the inkjet ink further comprises a dispersant.

21. (ALLOWED) The medium according to claim 1, wherein the porous substrate comprises a microporous membrane.

22. (AMENDED) An inkjet receptor medium comprising:

a porous membrane of a synthetic polymer having a fluid management system and a pigment management system in contact with surfaces of pores of the substrate, wherein the pigment management system comprises a multivalent metal salt coating along the surfaces of the porous substrate, wherein the fluid management system comprises a surfactant, and further wherein the size of the pores of the porous membrane is at least 0.2 μm, and is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-316.

23. (ALLOWED) The medium of claim 1, wherein the functionalized particulates comprise fluorinated silica agglomerates.

24. (ALLOWED) An inkjet receptor medium comprising:

a porous substrate having a fluid management system and a pigment management system in contact with surfaces of pores of the substrate wherein the pigment management system comprises fluorinated silica agglomerates that are capable of agglomerating pigment particles in a pigment-containing ink used to print the inkjet receptor medium.

25. The medium according to Claim 22, wherein the multivalent metal salt coating comprises a multivalent salt of cations derived from the elements of Group II and above in the Periodic Table within conditions of solubility rules, wherein the salt comprises a single salt or a binary salt or a ternary salt containing counterions selected from the group consisting of nitrate, nitrite, sulfate, sulfite, bisulfite, alkanesulfonate, fluoroalkanesulfonates, perchlorate, halide, pseudo-halides, acetate, propionate, and combinations thereof.

26. The medium according to Claim 22, wherein the porous membrane comprises a microporous membrane.

27. The medium according to Claim 26, wherein the microporous membrane comprises a polypropylene film co-extruded with a mineral oil followed by bi-axial stretching under thermal conditions.

28. The medium according to Claim 26, wherein the microporous membrane is a phase separated membrane.

29. The medium according to Claim 22, wherein the surfactant is selected from the group consisting of fluorocarbon, silicon, hydrocarbon-based surfactants or a mixture thereof.

30. The medium according to Claim 22, further comprising an additional surfactant, wherein the additional surfactant is a silicon-based non-ionic surfactant.

31. The medium according to Claim 29, wherein the surfactant comprises a hydrocarbon surfactant of a fatty acid.

32. The medium of claim 22 wherein the porous membrane of a synthetic polymer is a thermally induced phase separated microporous membrane.

33. (AMENDED) A method of making an inkjet receptor medium comprising:

(a) preparing a pigment management system;

(b) imbibing the pigment management system into pores of a porous membrane of a synthetic polymer, wherein the pigment management system once imbibed into pores of the

porous membrane comprises a multivalent metal salt coating along the surfaces of the pores of the porous substrate; and

(c) imbibing a fluid management system into the pores of the porous membrane wherein the fluid management system comprises a surfactant, and further wherein the size of the pores of the porous membrane is at least 0.2 μm, and is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-316.

34. A method of using an inkjet receptor medium comprising:

(a) placing an inkjet receptor medium of claim 22 in an inkjet printer; and

(b) printing an image on the medium using inkjet ink, wherein the inkjet ink comprises pigment particles.

35. The method according to Claim 34, wherein the inkjet ink further comprises a dispersant.

39. (AMENDED) An inkjet receptor medium comprising a porous substrate comprising a multivalent metal salt coating and an anionic surfactant in contact with surfaces of pores of the porous substrate, and further comprising a pigmented ink image thereon, wherein the size of the pores of the porous substrate is at least 0.2 μm, and is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-316.

41. (ALLOWED) An inkjet receptor medium comprising a porous substrate comprising fluorinated silica agglomerates in contact with surfaces of pores of the porous substrate.

42. (ALLOWED) The inkjet receptor medium of Claim 41 further comprising a pigmented ink image thereon.

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43. (ALLOWED) A method of using an inkjet receptor medium comprising:

(a) placing an inkjet receptor medium of claim 1 in an inkjet printer; and

(b) printing an image on the medium using inkjet ink.

44. The inkjet receptor medium of Claim 22, wherein the surfactant is an anionic surfactant.

45. The method of Claim 33, wherein the surfactant is an anionic surfactant.

46. The inkjet receptor medium of Claim 1, wherein the size of the pores of the porous substrate are about 0.4μ or greater.

47. The inkjet receptor medium of Claim 46, wherein the size of the pores of the porous substrate is no greater than about 2 μm.

48. The inkjet receptor medium of Claim 22, wherein the size of the pores of the porous substrate are about 0.4μ or greater.

49. The inkjet receptor medium of Claim 48, wherein the size of the pores of the porous substrate is no greater than about 2 μm.

50. (AMENDED) An inkjet receptor medium comprising:

a thermally induced phase separated microporous membrane of a synthetic polymer having a fluid management system and a pigment management system in contact with the surfaces of pores of the substrate, wherein the pigment management system comprises a multivalent metal salt coating along the surfaces of the microporous substrate, wherein the fluid management system comprises a surfactant, and further wherein the size of the pores of the

microporous membrane is at least 0.2 μm, and is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-316.

51. (AMENDED) A method of making an inkjet receptor medium comprising:

(a) preparing a pigment management system;

(b) imbibing the pigment management system into pores of a thermally induced phase separated microporous membrane of a synthetic polymer, wherein the pigment management system once imbibed into pores of the microporous membrane comprises a multivalent metal salt coating along the surfaces of the pores of the microporous substrate; and

(a) imbibing a fluid management system into the pores of the microporous membrane wherein the fluid management system comprises a surfactant, and further wherein the size of the pores of the microporous membrane is at least 0.2 μm, and is no greater than about 2.0μm, and wherein the pore size is a bubble point pore size measured according to ASTM F-316.

52. A method of using an inkjet receptor medium comprising:

(a) placing an inkjet receptor medium of claim 22 in an inkjet printer; and

(b) printing an image on the medium using inkjet ink.